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10/727,047	12/04/2003	Junichi Yamamoto	0085/011001	4832

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EXAMINER

MORRISON, THOMAS A

ART UNIT PAPER NUMBER

3653

DATE MAILED: 07/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/727,047

Applicant(s)

YAMAMOTO ET AL.

Examiner

Thomas A. Morrison

Art Unit

3653

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 December 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-9 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/4, 6/15, &amp; 1/19</u> | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-9 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Regarding claim 1, this claim recites "a recording medium" in line 6 and then recites "a recording medium" again in line 8 and line 11. It is unclear if the recited "a recording medium" in lines 8 and 11 is the same or different from the previously recited "a recording medium" in line 6.

Regarding claim 2, this claim recites "the servomotor". It is unclear which of the plurality of servomotors is referred to by this recitation.

The term "long" in claim 8 is a relative term which renders the claim indefinite. The term "long" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Regarding claim 9, this claim recites "a recording medium" in line 4 and then recites "a recording medium" again in line 5, line 8, line 9 and line 12. It is unclear if the recited "a recording medium" in lines 5, 8, 9 and 12 is the same or different from the previously recited "a recording medium" in line 4.

Regarding claim 9, it is unclear what is meant by the recited "recording an image, by means of the image recorder, on a recording medium **having conveyed by the plural conveyance power suppliers**". (emphasis added).

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-3 and 9, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,094,442 (Kamprath et al.).

Regarding claim 1, Figs. 1-4 show an image recording apparatus comprising:

an image recorder (column 1, lines 14-15) that records an image on a recording medium;

a conveyance mechanism having plural conveyance power suppliers (including 18, 14, 20 and 16) each supplying a conveyance power independent from each other (see column 4, lines 35-38) to a recording medium (S), the conveyance mechanism being capable of conveying, to a region confronting the image recorder, a recording medium (S) with a width thereof extending over the plural conveyance power suppliers (including 18, 14, 20 and 16);

a sensor (48 and/or 50) that detects a recording medium (S) being conveyed by the conveyance mechanism;

a misalignment amount calculator (column 4, lines 24-27 and column 5, lines 24-31) that calculates, based on a detection signal fed from the sensor (48 and/or 50), a misalignment amount of a recording medium (S) from a given conveyance area; and

an individual controller (59) that individually controls the respective plural conveyance power suppliers (including 18, 14, 20 and 16) such that the misalignment amount may become smaller.

Regarding claim 2, Figs. 1-4 show that each of the plural conveyance power suppliers (including 18, 14, 20 and 16) is individually driven by a servomotor (18 or 20); and the individual controller (59) individually controls a rotational frequency of the servomotor (18 or 20).

Regarding claim 3, Figs. 1-4 show that each of the plural conveyance power suppliers (including 18, 14, 20 and 16) includes a pair of conveyance rollers (16 and 28, and also 14 and 26) capable of pinching and conveying a recording medium (S); and the individual controller (59) individually controls a rotational frequency of the pair of conveyance rollers.

Regarding claim 9, Figs. 1-5 disclose an image recording method comprising the steps of:

conveying a paper (S) to a region confronting an image recorder (column 1, lines 14-15) that records image on a recording medium, by means of plural conveyance power suppliers (including 18, 14, 20 and 16) each supplying a conveyance power independent from each other to a recording medium (S);

detecting, with a sensor (48 and/or 50), a recording medium (S) in a region confronting the image recorder;

calculating, based on a detection signal fed from the sensor (48 and/or 50), a misalignment amount of a recording medium (S) from a given conveyance area (See, e.g., column 4, lines 24-27 and column 5, lines 24-31);

intermittently conveying a recording medium (S) as the plural conveyance power suppliers (including 18, 14, 20 and 16) are individually controlled such that the misalignment amount may become smaller; and

recording an image, by means of the image recorder (column 1, lines 14-15), on a recording medium having conveyed by the plural conveyance power suppliers (including 18, 14, 20 and 16). See also column 1, lines 7-11)

3. Claims 1,3 and 9, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,855,607 (Eckl).

Regarding claim 1, Figs. 1-3 show an image recording apparatus comprising:

an image recorder (including 22) that records an image on a recording medium (16);

a conveyance mechanism having plural conveyance power suppliers (including 32 and 38, and also 34 and 40) each supplying a conveyance power independent from each other to a recording medium (16), the conveyance mechanism being capable of conveying, to a region confronting the image recorder (including 22), a recording medium (16) with a width thereof extending over the plural conveyance power suppliers (including 32 and 38, and also 34 and 40);

a sensor (14) that detects a recording medium (16) being conveyed by the conveyance mechanism;

a misalignment amount calculator (50) that calculates, based on a detection signal fed from the sensor (14), a misalignment amount of a recording medium (16) from a given conveyance area; and

an individual controller (26) that individually controls the respective plural conveyance power suppliers (including 32 and 38, and also 34 and 40) such that the misalignment amount may become smaller.

Regarding claim 3, Figs. 1-5 show that each of the plural conveyance power suppliers (including 32 and 38, and also 34 and 40) includes a pair of conveyance rollers (e.g., 32 and 38) capable of pinching and conveying a recording medium (16); and the individual controller (16) individually controls a rotational frequency of the pair of conveyance rollers (e.g., 32 and 38).

Regarding claim 9, Figs. 1-5 disclose an image recording method comprising the steps of:

conveying a paper (16) to a region confronting an image recorder (including 22) that records image on a recording medium (16), by means of plural conveyance power suppliers (including 32 and 38, and also 34 and 40) each supplying a conveyance power independent from each other to a recording medium (16);

detecting, with a sensor (14), a recording medium (16) in a region confronting the image recorder (14);

calculating, based on a detection signal fed from the sensor (14), a misalignment amount of a recording medium (16) from a given conveyance area (see, e.g., column 4, lines 23-36);

intermittently conveying a recording medium (16) as the plural conveyance power suppliers (including 32 and 38, and also 34 and 40) are individually controlled such that the misalignment amount may become smaller; and

recording an image, by means of the image recorder (including 22), on a recording medium (16) having conveyed by the plural conveyance power suppliers (including 32 and 38, and also 34 and 40).

4. Claims 1,3 and 9, as best understood, are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 4,734,716 (Silverberg et al.).

Regarding claim 1, Figs. 1-10 show an image recording apparatus comprising:  
  
an image recorder (including 34) that records an image on a recording medium (22);



a conveyance mechanism having plural conveyance power suppliers (including 54 and 62, and also 56 and 64) each supplying a conveyance power independent from each other to a recording medium (22), the conveyance mechanism being capable of conveying, to a region confronting the image recorder (including 34), a recording medium (22) with a width thereof extending over the plural conveyance power suppliers (including 54 and 62, and also 56 and 64);

a sensor (82) that detects a recording medium (22) being conveyed by the conveyance mechanism;

a misalignment amount calculator (see, e.g., column 8, lines 43-44) that calculates, based on a detection signal fed from the sensor (82), a misalignment amount of a recording medium (22) from a given conveyance area; and

an individual controller (120) that individually controls the respective plural conveyance power suppliers (including 54 and 62, and also 56 and 64) such that the misalignment amount may become smaller.

Regarding claim 3, Figs. 1-10 show that each of the plural conveyance power suppliers (including 54 and 62, and also 56 and 64) includes a pair of conveyance rollers (e.g., 54 and 62) capable of pinching and conveying a recording medium (22); and the individual controller (120) individually controls a rotational frequency of the pair of conveyance rollers.

Regarding claim 9, Figs. 1-10 disclose an image recording method comprising the steps of:

conveying a paper (22) to a region confronting an image recorder (including 34) that records image on a recording medium (22), by means of plural conveyance power suppliers (including 54 and 62, and also 56 and 64) each supplying a conveyance power independent from each other to a recording medium (22);

detecting, with a sensor (82), a recording medium (22) in a region confronting the image recorder (including 34);

calculating, based on a detection signal fed from the sensor (82), a misalignment amount of a recording medium (22) from a given conveyance area (see, e.g., column 8, lines 43-44);

intermittently conveying a recording medium (22) as the plural conveyance power suppliers (including 54 and 62, and also 56 and 64) are individually controlled such that the misalignment amount may become smaller; and

recording an image, by means of the image recorder (including 34), on a recording medium (22) having conveyed by the plural conveyance power suppliers (including 54 and 62, and also 56 and 64).

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 4 and 6, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Eckl patent as applied to claim 1 above, and further in view of Japanese Publication No. 59-91076. Regarding claim 4, the Eckl patent discloses most of the features including a holding member and a drive mechanism, but the Eckl patent does not show that the sensor (14) is attached to the holding member, as claimed.

Japanese Publication No. 59-91076 discloses that it is well known to provide an image recording apparatus with a sensor (7) that detects a recording medium and individually controlled conveyance power suppliers (including 39a, 40a, 38a and 34a, and also 39a, 40b, 38b and 34b) that correct skew of the recording medium based on a signal from the sensor (7). Fig. 4 of Japanese Publication No. 59-91076 shows a holding member (4) that holds an image recorder (5) such that the image recorder (5) may confront a recording medium, and a drive mechanism (whatever moves element 5 right and left in Fig. 4) that reciprocates the holding member (4), wherein the sensor (7) is attached to the holding member (4). The English abstract explains that, "by providing a unidimensional or two-dimensional image sensor in proximity to the printing head 5, it is possible to read a character or figure printed immediately before and to control the

feed quantity of the paper in accordance with the result of reading to thereby perform an accurate and flexible printing operation.” It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the device of the Eckl patent with a sensor located on the holding member that holds the image recorder, in order to control the feed quantity of the paper in accordance with the result of reading to thereby perform an accurate and flexible printing operation, as taught by Japanese Publication No. 59-91076.

Regarding claim 6, Fig. 4 of Japanese Publication No. 59-91076 shows that the sensor (7) comprises plural point sensors (7 and 7) arranged substantially in parallel to the conveyance direction of a recording medium. In particular, each sensor 7 has a side edge that is substantially parallel to the conveyance direction.

6. Claim 5, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Eckl patent as applied to claim 1 above, and further in view of Japanese Publication No. 59-91076 and Japanese Publication No. 2000-247510. Regarding claim 5, the Eckl patent and Japanese Publication No. 59-91076 disclose all of the features of claim 5, except for the sensor being a single point sensor.

Japanese Publication No. 2000-247510 discloses that it is well known to provide a single point sensor (18) on a holding member in order to detect skew of a recording medium. See, e.g. Figs. 4-5 and the numbered paragraph [0041] of the English translation. It would be obvious to one of ordinary skill in the art at the time of the invention to provide a single point sensor on a holding member of the device of the Eckl

patent, rather than plural point sensors so as to reduce the number of parts that have to be assembled during manufacturing, thereby reducing the complexity and cost of manufacturing, as shown in Japanese Publication No. 2000-247510.

7. Claim 7, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Silverberg et al. patent as applied to claim 1 above, and further in view of U.S. Patent No. 6,014,000 (Gutierrez). Regarding claim 7, the Silverberg et al. patent discloses all of the features, except for the individual controller controlling the plural conveyance power suppliers such that a recording medium may be stopper during recording of an image.

The Gutierrez patent discloses that it is well known to control a plurality of motors (126, 128 and 130) in a plotter or printer via a controller (118), such that the controller (118) can start, operate at different angular velocities and stop each motor from time to time during printing in order to move a recording medium. See, e.g., column 4, lines 19-22. Gutierrez explains that, "In general, motors may be stopped to stop paper movement, to conserve power, to reduce heat dissipation, and to reduce operating noise." See, e.g, column 4, lines 22-24. It would have been obvious to one of ordinary skill in the art at the time the invention was made to operate the controller of the Silverberg et al. patent to move the plural conveyance power suppliers such that a recording medium may be stopper during recording of an image, in order to conserve power, to reduce heat dissipation, and/or to reduce operating noise as taught by Gutierrez.

8. Claim 8, as best understood, are rejected under 35 U.S.C. 103(a) as being unpatentable over the Silverberg et al. patent as applied to claim 1 above, and further in view of U.S. Patent No. 6,199,976 (Sasada). The Silverberg et al. patent discloses an image recording device that conveys a recording medium from a roll. See, e.g., column 9, lines 41-45. In fact, the Silverberg et al. patent discloses all of the features of claim 8, except for a detachable roll-portion container.

The Sasada patent discloses that it is well known to provide an image recording device with a detachable roll-portion container (including 32) for containing a roll portion (30) formed by rolling a long recording medium. The Sasada patent shows that such an arrangement makes it easy for a user to change out the roll of recording medium by lifting such roll out of the slot in element 28. See, e.g., Fig. 2 and column 2, lines 36-40. It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the device of Silverberg et al. with a detachable roll-portion container to facilitate easy changing of rolls, as shown in the Sasada patent.

### ***Conclusion***

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas A. Morrison whose telephone number is (571) 272-7221. The examiner can normally be reached on M-F, 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gene Crawford can be reached on (571) 272-6911. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3653

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

07/05/2006

  
GENE O. CRAWFORD  
SUPERVISORY PATENT EXAMINER